

METHOD AND APPARATUS FOR ETCHBACK PROFILE CONTROL

ABSTRACT OF THE DISCLOSURE

A method and apparatus for etchback profile control. The method includes performing a first etch through a first dielectric layer to form a first via and a second dielectric layer, filling the first via with a BARC material to form a first BARC layer, and performing a second etch on the first BARC layer to form a second BARC layer. The second etch has a first etch rate in a first peripheral region of the second BARC layer and a second etch rate in a first central region of the second BARC layer. The first peripheral region is located around a sidewall of the first via, and the first central region is located around a center of the first via. The first etch rate is larger than the second etch rate, and the first peripheral region is located higher than the first central region. A first top surface of the second BARC layer has substantially a first convex shape. Additionally, the method includes performing a third etch through a second dielectric layer to form a trench and a third BARC layer. The trench has a trench bottom surface, which is substantially free from any spike around a side surface of the third BARC layer. A second top surface of the third BARC layer has substantially a second convex shape. Moreover, the method includes removing the third BARC layer to form a second via.

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